duce the slightest characteristic reaction in these. But tracing these enlarged cells in their course towards the point of the leaf, we find that, first, a very considerable spiral or annular thickening band is developed from their ovules ; and secondly, that these walls become perforated in particular localities, showing clearly that the cellulose wall is in itself abundantly competent to perform the vital actions of assimilation and absorption, or rather resolution, without the assistance of the primordial utricle.

Nor let it be said, that here the thickenings and resolutions are determined by the primordial utricles of adjacent cells, for the *Sphagnum* leaf, as is well known, consists of only a single layer of cells joined side by side, and the thickening takes place as much on the upper and lower surfaces as on the sides of the spiral cells, while the perforations are formed exclusively upon the upper and lower surfaces. Surely here nature furnishes us with a crucial instance of the independent vitality and powers of action of the cellulose cell-wall, whence important conclusions may be drawn for the whole vegetable kingdom.

There is yet another error which we venture to submit pervades the whole of vegetable no less than animal physiology,—we refer to the notion that animals and plants are formed by the coalescence of their histological elements—the cells. It is said that plants are formed by means of cells which have "*grown together*" (Von Mohl, p. 30), having "arisen separately as development teaches" (Schacht, p. 75) ; and this conception of the individuality of the separate plant-cells, though by giving distinctness to the ideas of investigators it has served a good purpose, seems to us to be at present essentially obstructive.

If in fact we turn from this convenient mode of viewing the facts to the facts themselves as they really are, we find that the cells which compose any vegetable tissue never have been independent, and that therefore it is as absurd to talk of their coalescence, as to say that a man is formed by the coalescence of his head, trunk and limbs.

Indeed, all the knowledge we have hitherto obtained of development, whether morphological or histological, uniformly bears testimony to the truth, that the great law established by Von Bär for the animal world holds good as universally in that of plants. They and all their organs, and all the histological elements of these organs, are produced, *not by the coalescence of the heterogeneous, but by the differentiation of the homogeneous parts*, and it would be more true to say that the plant is formed by the separation of cells than that it arises from their coalescence. This however is a most important subject, and one which we hope to follow out elsewhere.

Handbuch der Conchyliologie und Malacozoologie.
Von Dr. R. A. Philippi. Halle, 1853. 8vo, pp. 548.

By the preface we are informed that this work was written on board the Hamburg brig Bonito, and dated while it was passing Cape Horn, the author having, by the late political disturbances in

Germany, and also on account of his own very bad health, been obliged to make an excusion to the west coast of South America, where there is no doubt he will add much to our knowledge of the molluscous animals, and it is to be hoped give us as good a work on the mollusca of those seas as his very excellent one on those of Sicily.

The present work is divided into three sections. The first contains the general characteristics of Mollusca, with an account of their systematic classification, uses, and terminology.

The second, the systematic arrangement of the 638 genera of *Mollusca* (viz. 403 Univalves, 210 Bivalves, 25 Tunicata), and 35 genera of *Cirripedia*, with their characters, synonyma, a reference to those works in which they were first described, and the derivations* of their generic names.

The third contains an alphabetical list of all the genera of recent and fossil Mollusca which are not referred to in the former part; an index of the Latin and German terms used in the work and of the genera and their synonyma.

The first Part appears to be very carefully executed, and contains a great quantity of very interesting and novel matter.

In the second Part all the classes are arranged nearly in the same manner as in the latest edition of the Systems proposed by Dr. Gray in his various Essays, and as now used in the British Museum, and the greater part of the names of the genera and their synonyma are evidently adopted from the List of Genera of Mollusca published by that author in the Proceedings of the Zoological Society for 1847. The enlargement of the Cuvierian order *Scutibranchia* to contain the *Nerites, Trochi* and *Turbines*, as well as the *Haliotidæ* and *Emarginulidæ*, is adopted, and it is placed next to the *Cyclobranchiæ* and *Cirribranchiata*. The families proposed in the 'Synopsis of the British Museum' for the year 1838 and 1840, gradually modified as the knowledge of the animals increased until the publication of the fourth volume of the 'Figures of Mollusca' by Mrs. Gray, and in the Special Catalogues of Pteropods and Cephalopods, have been almost uniformly adopted; the chief alterations being the separation of the *Olivacea* from *Buccinidæ* proposed by Dr. Troschel, the placing of *Siphonariacea* and *Acmeacea* (= *Tecturidæ*) with *Pectinibranchia*, and the arranging of *Ampullariacea* with *Pulmonata*, —three alterations which must have arisen from Dr. Philippi's not having had the opportunity of examining the animals, which we are convinced he will be the first to alter when he has done so; and fortunately the country he is now engaged in exploring will afford him many materials for the purpose.

Dr. Philippi, when speaking of Dr. Gray's arrangement, observes, that it has been changed from year to year. We consider this is the greatest praise, for the changes have only been made by trying to keep the systematic arrangement of the Mollusca on a level with the rapidly progressive state of the science.

It is an excellent manual, and almost the only work on the sub-

* There are many instances where explanations are given of names which were intended simply as names without any meaning, and some names of this kind are corrected to make them fit the explanations given ! ! !

ject which approaches the present state of the science; and from the same arrangement being used as that adopted in the British Museum, it forms an excellent manual for that collection.

In the Press.

A Naturalist's Rambles on the Devonshire Coast.
By P. H. Gosse, A.L.S.

This work will embody the result of researches and observations made by the author among the rocks, caves and tide-pools of the interesting shores of North and South Devon; and will comprise the most beautiful and interesting forms of sea-side Natural History, many of which are as yet undescribed.

PROCEEDINGS OF LEARNED SOCIETIES.

ROYAL SOCIETY.

Jan. 13, 1853.—A paper was read, entitled "Description of some species of the extinct genus *Nesodon*." By Prof. Owen, F.R.S.

The author commences by referring to a genus of extinct herbivorous mammals which he had founded in 1836, on certain fossil remains discovered in Patagonia, and which, from the insular disposition of the enamel folds characteristic of the molar teeth, he had called *Nesodon*. Subsequent transmissions of fossils from the same part of South America, by their discoverer, Capt. Sulivan, R.N., now enabled the author to define four species of the genus. The first which he describes is founded on a considerable portion of the cranium and the lower jaw, with the teeth, and is called *Nesodon ovinus*. After the requisite osteological details and comparisons the author proceeds to describe the three incisors, the canine, and five molar teeth, which are present on each side of both upper and lower jaws, and then enters upon an inquiry as to the nature and homologies of the grinding teeth. The result is to show that the first four molars belong, with the incisors and canines, to the deciduous series, and that the fifth molar is the first true molar of the permanent series; the germ of a second true molar was discovered behind this, in both the upper and the lower jaws, whence the author concludes that the *Nesodon ovinus* had the typical number of teeth when the permanent series was fully developed, viz. $i\,\frac{3-3}{3-3}$, $c\,\frac{1-1}{1-1}$, $p\,\frac{4-4}{4-4}$ $m\,\frac{3-3}{3-3} = 44$.

The structure of the grinding teeth proving the extinct animal to have been herbivorous, the number and kinds of teeth in the entire series show that it was ungulate. In this great natural series of mammalia the author next shows that the *Nesodon* had the nearest affinities to the odd-toed or Perissodactyle order amongst the existing species; but certain modifications of structure, hitherto peculiar to the even-toed or Artiodactyle Ungulates, are repeated in the cranium of the *Nesodon*: more important marks of affinity are pointed out in the *Nesodon* to the *Toxodon*; and both these extinct forms of South